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ABSTRACT

Researchers have given little attention to theory on the measurement of interorganizational relations (IOR). The purpose of this paper is to analyze one factor influencing the development of such a theory. Eight items indicating low to high intensity IOR are postulated: (1) director awareness, (2) director acquaintance, (3) director interaction, (4) information exchange, (5) resource exchange, (6) overlapping membership, (7) joint programs, and (8) written agreements. The theoretical order of these items is tested empirically across four types of organizations distinguished by funding source: (1) voluntary, (2) public, (3) professional, and (4) interorganizational. Guttman analysis is used to test item orderings. The postulated theoretical order and the empirical orderings for each type of organization are statistically significant. Three items--director awareness, director acquaintance, and written agreements--are in the same order in the theoretical and empirical orderings for all four organizational types. It is concluded that type of organization is a moderator variable. Analysis of the empirical orderings suggests the following revised general theoretical order: (1) director awareness, (2) director acquaintance, (3) information exchange, (4) director interaction, (5) joint programs, (6) resource exchange, (7) overlapping boards, and (8) written agreements. Evaluation indicates the revised theoretical ordering is statistically significant. (Author/DN)

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INTERORGANIZATIONAL MEASUREMENT:

DIFFERENCES BETWEEN TYPES OF ORGANIZATIONS

by

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INTERORGANIZATIONAL MEASUREMENT: DIFFERENCES BETWEEN TYPES OF ORGANIZATIONS

A theory of the measurement of interorganizational relations (IOR) has received little attention by researchers. The purpose of this paper is to analyze one factor influencing the development of such a theory.

Eight items indicating IOR from low to high intensity are postulated: (1) director awareness; (2) director acquaintance; (3) director interaction; (4) information exchange; (5) resource exchange; (6) overlapping board membership; (7) joint programs; and (8) written agreements. The theoretical order of these items is tested empirically across four types of organizations distinguished by funding source: (1) voluntary; (2) public; (3) professional; and (4) interorganizational.

Guttman analysis is used to test item orderings. The postulated theoretical order and the empirical orderings for each type of organization are statistically significant. The empirical orderings of items for voluntary and professional organizations are identical. None of the empirical orders is identical to the theoretical order. Four items, director awareness, director acquaintance, overlapping boards, and written agreements are in the same empirical order for all types of organizations. Three items, director awareness, director acquaintance, and written agreements,are in the same order in the theoretical ordering and the empirical orderings for all four organizational types.

It is concluded that type of organization is a moderator variable. Analysis of the empirical orderings suggests the following revised general theoretical order: (1) director awareness; (2) director acquaintance; (3) information exchange; (4) director interaction; (5) joint programs; (6) resource exchange; (7) overlapping boards; and (8) written agreements. A rationale for this ordering is presented. Evaluation indicates the revised theoretical ordering is statistically significant.

INTERORGANIZATIONAL MEASUREMENT: DIFFERENCES BETWEEN TYPES OF ORGANIZATIONS

The study of organizations is increasingly focusing on linkages or relationships between organizations. Much recent literature on interorganizational relations has focused on theoretical developments (White and Vlasak, 1971). A more limited emphasis in interorganizational relations (IOR) has been empirical research. Hall (1972:316) indicates: "There are too few empirical studies for a firm basis of understanding."

One specific deficit in empirical work has been the measurement of inter-organizational involvement. Measurement efforts which have been pursued often have neglected the cumulative nature of IOR. That is, when considering interorganizational relations as interactions between two or more organizations, it is logical to assume that some relations between organizations would be more intense and involve a greater degree of commitment than would other relations. For example, activities such as written agreements between organizations indicate a more intense IOR commitment than do other activities such as interaction of organizational directors. Aiken and Hage (1968) use only the single indicator of number of joint programs carried out between two organizations to measure IOR involvement. Levine and White (1961) use a series of single indicators of IOR, but do not develop a cumulative measure.

Finley's (1969) study is one of the two studies of which we are aware that develops cumulative multi-item measures of IOR. Klonglan, et al. (1972) combine assumptions about the cumulative idea of IOR with multi-item measures of the concept to specify eight theoretically ordered items to measure interorganizational relations. The original Klonglan, et al. (1972) empirical analysis incorporated four types of organizations (voluntary, public, professional, and interorganizational) without regard to possible differences between the organizations. Given the infancy of the use of ordered cumulative multi-item measures in IOR, it seems that we should consider

moderator effects on IOR theory and measurement. Moderator effects have been defined by Ghiselli (1963:81) as "...variables which predict individual differences in error and in the importance of traits." In this paper, the "individual differences" are assumed to be differences between types of organizations. Thus, type of organization is the moderator variable considered in this paper. Level of organization is also a moderator variable (Klonglan, Warren, Winkelpleck and Paulson, 1972). Once the major moderators are identified, the usefulness of interorganizational relations theory and measurement will be improved.

This paper is concerned with assessing the generalizability of the measurement of interorganizational relations across types of organizations. The theoretical and methodological implications of the extent to which measures of the intensity of IOR can be generalized across alternative types of organizations influences the development of interorganizational relations theory. The purpose of this paper, however, is not to build a total theory of the measurement of IOR. Rather, the purpose is to analyze the influence of one moderator, type of organization, on IOR as a partial step toward development of a theory of measurement of interorganizational relations.

FORMS OF INTERORGANIZATIONAL RELATIONS

Interorganizational relations, as defined in this paper, are the contacts occurring between members of an organization's task environment. Task environment, as conceptualized by Dill (1958), denotes the parts of the environment presently or potentially relevant to goal setting and attainment. Our usage of IOR is restricted to cooperative forms and does not include competitive or conflicting interorganizational relations. On the basis of this exploratory empirical conceptualization of IOR measurement, we suggest that future analysis include competitive and conflicting interorganizational relations.

Eight IOR Forms

Thompson and McEwen (1958), Litwak and Hylton (1962), and Finley (1969) suggested ideas used by Klonglan et al. (1972) to develop eight items to operationalize forms of interorganizational relations. These items are measures of organizational interaction that occurs in the process of developing interorganizational relations. Each item is measured by asking one organization about its interaction with a second organization. The eight items are listed in the theoretical ordering suggested by Klonglan, et al. (1972) to indicate IOR forms from low to high intensity.

The first three forms represent Litwak and Hylton's awareness of interdependence:

(1) Director awareness of the existence of another organization;

(2) Director acquaintance between organizations;

(3) Director interaction between organizations;

The fourth item is a low level of resource exchange from Finley:

(4) Information exchange of newsletters, reports, and releases;

Forms five through seven are from Thompson and McEwen:

(5) Resource exchange of funds, materials, or personnel;

(6) Overlapping board membership of staff or members;

(7) Joint programs to plan and implement activities;

The final item represents the standardized action of Litwak and Hylton:

(8) Written agreements to share activities between organizations.

Ordering Rationale

The first item or form (director awareness) specifies that the director is only aware of the existence of another organization. The next two forms (director acquaintance, director interaction) represent a "feeling out" of the situation by the organization. It is assumed that initial contact is conducted by the principal administrator or "director". Often this relatively low level of relations is sufficient to obtain needed resources or goals. If it is not, the fourth level involves information exchange. The fifth form, resource exchange, represents

further commitment to other organizations in terms of funds, materials, or personnel skills. The sixth level, overlapping board membership, involves absorption of leaders of one or more organizations into the power structure of a focal organization. This assists the organization in operating and legitimizing its domain. An organization still seeking resources may establish joint programs, the seventh form, that insure commitments from other organizations. The eighth and final step is to formalize commitments between organizations through written agreements. At this step, the organization is totally committed to the interorganizational activity and has high predictability of receiving resources from the task environment.

These eight items are intended to measure the intensity of cooperative interorganizational relations. Intensity is an ordinal continuum of forms for resource attainment which represents increasing involvement with the environment. For example, if an organizations' highest intensity of involvement is information exchange, the theoretical assumption is that the director is aware of the existence of the other organization and the directors of each organization are acquainted and have interacted.

Theoretically, the implication seems to be that the highest level of IOR intensity, written agreements, is most desirable for obtaining organizational objectives. Past developments in interorganizational relations, however, would indicate support for the position that different organizational objectives may be fulfilled by alternative intensities of IOR. A higher intensity involves greater commitment to and control by the environment which decreases organizational autonomy to set goals and make decisions. Higher intensity also increases the preditability of attaining resources. We are unaware of previous research testing the hypothesis that higher intensity is related to impacting effectiveness. Such analysis is presently underway at Iowa State University.

IMPORTANCE OF TYPES OF ORGANIZATIONS

Alternative typologies of organizations have been developed (Blau and Scott, 1962; Etzioni, 1961; Hall, Haas and Johnson, 1967; Parsons, 1960; Thompson and Tuden, 1959). Logical, as well as empirical, evidence (Hall, Haas, and Johnson, 1967) exists for examining possible differences among types of organizations. Interorganizational research, however, often has been pursued without consideration of alternative types of organizations which have been incorporated in the data. The present analysis evaluates types of organization as a moderator variable on the measurement of interorganizational relations.

Etzioni (1961) used the power framework to develop an organizational typology. He delineated coercive, utilitarian, and normative organizations distinguished on the basis of control. Coercive organizations use coercion for control over lower-level participants. Utilitarian organizations exercise control through remuneration. Normative organizations exercise normative or moral control over lower-level participants.

Blau and Scott (1967) used the principle of prime beneficiary, or who benefits, in delineating four types of organizations: 1) mutual-benefit associations, 2) business concerns, 3) service organizations, and 4) commonweal organizations. In mutual-benefit associations, the prime beneficiary is the membership. Owners benefit in business concerns. Service organizations aid a specific client group. Commonweal organizations serve the public at large.

The Etzioni and Blau-Scott typologies probably have received as much or more attention than other classification systems. Some commonality exists between these systems. For example, religious organizations, professional organizations, political parties, and voluntary associations are classified by Blau-Scott as mutual-benefit associations and by Etzioni, as predominantly normative organizations. Business concerns generally are comparable to Etzioni's predominantly

utilitarian organizations. Service organizations are less easily compared to Etzioni's types. It seems that service organizations would generally be classified as normative (i.e., hospitals, schools) or coercive (i.e., correctional institutions, prisons) organizations. Commonweal organizations also are difficult to compare to Etzioni's typology, but we suggest that they might often involve utilitarian or normative organizations.

Previous Organizational Research

Much organizational and interorganizational research has focused only on one type of organization. Governmental organizations, such as agencies, the Coast Guard, and the military, probably are classifiable as commonweal or utilitarian organizations (Mayhew, James and Childers, 1972; Blau, 1968). Health research has involved such institutions as mental hospitals, mental health departments, correctional institutions, and social welfare agencies (Kriesberg, 1962; Zald, 1962; Hage and Aiken, 1967). These organizations are predominantly service and coercive or normative organizations. Companies and businesses, classified as business concerns and utilitarian organizations have also received attention in organizational research (Mahoney and Weitzel, 1969; Udy, 1962; Assael, 1969). The educational institution, involving service or normative organizations, has been researched (Clark, 1965). Finally, a major focus of organizational research has been voluntary organizations (Hyman and Wright, 1971; Smith, 1966). Voluntary organizations would be classified as mutual-benefit associations or normative organizations.

Limited attention has focused on comparing alternative types of organizations. Max Weber (1958) pioneered a theoretical concern with differing types of organizations in discussing the religious and economic institutions, and the prevalent social and economic relationships in society. Hall, et al. (1967), in examining the Blau-Scott and Etzioni organizational typologies, used empirical data in comparing alternative types of organizations. The theoretical and empirical

comparisons of organizations suggest that alternative types of organizations may be a moderator in organizational and interorganizational relations.

We have chosen to use an organizational typology based on source of funds and incorporating some of the theoretical assumptions of the Blau-Scott and Etzioni typologies. The four types of organizations that we propose are: 1) voluntary organizations that receive funds from private sources, such as contributions and bequests; 2) public organizations that are funded through tax revenues; 3) professional organizations that are supported through contributions, usually dues, of professionals in a specific field; and 4) interorganizational organizations that receive funds from contributions by member organizations in the form of dues or assessments. Babchuk (1965) also used these four types of organizations in research.

In each of the four types of organizations, it is possible to have the kinds of control Etzioni delineates. For example, professional organizations may be predominantly normative, but coercive power might also be used. The organizations that we are concerned with empirically are not, however, predominantly coercive organizations. Mutual-benefit associations would encompass our voluntary organizations. Professional organizations would compare to service organizations. Commonweal and public organizations share many similarities, and interorganizational organizations are both mutual-benefit associations and commonweal organizations. Our objective is to assess possible differences between types of organizations, rather than empirically support the particular typology we have used. Future analysis might devote more attention to alternative typologies of organizations if our preliminary analysis supports the moderating effect of type of organization.

Possible Differences Between Types of Organizations

Our organizational classification system assumes that interorganizational organizations already have an interest in IOR. We expect, therefore, that interorganizational organizations will indicate a more intense IOR involvement. There are, however, some other possible differences between types of organizations that have implications for social

planners who work with alternative types of organizations. Four possible differences will be discussed.

First, different types of organizations may have available alternative kinds and quantities of information to exchange. Professional organizations may have professional journals that could be used by other types of organizations to exchange information on an issue of common concern. Public organizations may be limited by law to how extensively they can share information with other agencies as well as how extensively they can use information provided by other organizations. In all four types of organizations, there may be reluctance to exchange information because of the different populations served by an organization. For example, information on cancer shared by medical professionals might not be readily understood, or might be misunderstood, by many members of voluntary organizations. Also, some types of organizations may have extensive information in an area, but the information may not be meaningful to members of another type of organization. Public regulations on the specifications for necessary household space for foster children may be of little interest to a local PTA, even though the PTA is concerned with the education of foster children living in their school district.

Second, financial and other resources may also differ among types of organizations. Public organizations usually operate from a larger financial base than do other types of organizations. The lower level of funds in voluntary organizations may result in such organizations being less willing to share resources requiring financial inputs.

Third, the staffs in alternative types of organizations may influence interorganizational relations. Interorganizational organizations obviously involve people who are working together. Professional and public organizations often involve people who have had experience at cooperating with organizations other than their own. Staffs of voluntary organizations may have had less experience in interorganizational relations. Staffs of professional organizations are usually more highly educated than staffs of voluntary organizations, and this may affect their ability to interact with others to reach a common objective.

Fourth, policy differences between types of organizations may influence organizational IOR involvement. Public organizations may be allowed to engage in IOR formally only when specifically allowed to do so under the law. Voluntary organizations would seem to have the least rigid controls imposed on them as to whether they are allowed to engage in interorganizational relations.

MEASUREMENT OF INTERORGANIZATIONAL RELATIONS

The data used to measure IOR were collected in a research project focusing on health in a nonmetropolitan state (see Klonglan and Paulson, 1971). The total population involved organizations located in nonmetropolitan areas of the United States and having a stated concern with health. The primary criterion for the sample selection was each area being nonmetropolitan, i.e., not containing a city of 50,000 population or greater. Iowa was designated as the state from which to draw the sample and within Iowa two nonmetropolitan areas, each with seven counties, were selected for study. Health related organizations operating, or potentially operating in each area level were purposefully sampled from a complete list of organizations at state, area and county levels. Organizational units at all three of these levels were data sources. A final sample of 156 organizational units representing 35 health related organizations was studied. Data were collected

(Table 1 About Here)

from interviews with the "top" paid administrator of each unit in 1969 and from organizational publications.

Each of the 156 administrators was asked about the intensity of the interaction between their organizational unit and 18 contact organizations (See Table 1). One hundred and fifty-six administrators responding to a specific item about 18 contact organizations would result in each item being administered 2808 times (156 x 18). When the respondent's organization was a contact organization, however, the respondent was not asked the item about their organization. For

example, if a respondent represented the Cancer Society they were not asked if they were aware of the Cancer Society. The resultant number of administrations was 864 among voluntary organizations, 774 among public organizations, 918 among professional organizations, and 144 among interorganizational organizations.

The unit of analysis in this paper is the dyadic relationship, as seen by the administrator of one organization, between his organization and another organization. That is, the unit of analysis is the response of administrator "1" (through 156) to organization "1" (through 18) regarding IOR. It is assumed that responses by administrators about interorganizational relations are independent. The response given by administrator "2" about organization "a" cannot be predicted from what administrator "1" indicated about organization "a". Also, the response given by administrator "1" about organization "b" cannot be predicted from what the same administrator said about organization "a".

Measurement Items

Each of the items in the IOR Scale was answered, "Yes" or "No". The specific questions for each item were:

1. Director awareness:

   As far as you know, is there (name of other organization) in this (state, area or county)?

2. Director acquaintance:

   Are you acquainted with the director or person in charge of (contact organization)?

3. Director interaction:

   Have you met with the director of (contact organization) at any time during the past year to discuss the activities of your respective organizations?

4. Information exchange:

   Is your organization on (contact organization's) mailing list to receive newsletters, annual reports, or other information? OR: Is (contact organization) on your organization's mailing list to receive any of your newsletters, annual reports, or other information releases?

5. Resource exchange:

   Has your organization shared, loaned, or provided resources such as meeting rooms, personnel, equipment, or funds to (contact organization) at any time during the last three years? OR: Has (contact organization) shared, loaned, or provided resources such as meeting rooms, personnel, equipment, or funds to your organization at any time during the last three years?

6. Overlapping boards or councils:

   Does anyone from your organization or (contact organization) including staff, board members, or members serve on boards, councils, or committees of the other organization?

7. Joint programs:

   Within the last three years, has your organization worked jointly in planning and implementing any specific programs or activities with (contact organization)?

8. Written agreements:

   Does your organization have any written agreements with (contact organization) pertaining to personnel commitments, client referrals, procedures for working together, or other joint activities?

EVALUATION OF THE IOR MEASURE

The cumulative measure of interorganizational relations was evaluated in two ways. First, the four organizational types of voluntary, public, professional, and interorganizational were compared utilizing the theoretical ordering of items

delineated earlier in this paper. Second, the empirical ordering resulting in the highest coefficient of reproducibility for each type of organization was determined and compared to the original theoretical IOR ordering.

Guttman scale analysis is used to evaluate the scales (Guttman and Suchman, 1947). The usual Guttman procedure is used for model building and allows computer ordering of the scale items. In our first method of evaluation, however, we specified an a priori ordering of the items. This restricted Guttman procedure allows for model testing which is, methodologically, the concern of the present analysis. The Statistical Package for the Social Sciences was used to do the computations (Nie, Bent, and Hull, 1970).

Data on response patterns and scale types will be presented as a preliminary basis for evaluation of the IOR measure. If differences exist among types of organizations on "Yes" response patterns and conforming scale types, we will have established an intuitive rationale for further analysis to more precisely determine the influence of type of organization on interorganizational relations measurement.

Item Differences

Table 2 presents the frequency of "Yes" responses to each of the eight scale

(Table 2 About Here)

items. Examination of percentage of responses among voluntary, public, professional, and interorganizational organizations indicates that differences exist among the four types of organizations on the frequency of "Yes" responses to each item. For the first seven scale items, over one-third of the interorganizational organizations exercised IOR in those forms, whereas the percentage of the other organizations engaging in IOR of the specific form was generally much less. For items three through seven, the highest proportion of voluntary, public, or professional organizations engaging in these forms of IOR was about one-fifth. For items three through seven, interorganizational organizations consistently were involved one-third of the time in these IOR forms. Public organizations would rank second in frequency of involvement in IOR of forms three through seven, and voluntary and professional organizations would be ranked quite closely.

For all types of organizations, but especially interorganizational organizations, much of the IOR, using this eight-item scale, is concentrated in director awareness and director acquaintance. Over thirty percent of the organizations are aware of other directors. Very low percentages of organizations engage in written agreements. Interorganizational organizations probably should evidence a higher percentage of involvement in written agreements because, by definition, interorganizational organizations are involved in IOR.

"Perfect" Scale Types

Frequencies of perfect scale patterns indicate that 2025, or 75 percent, of the usable administrations (N=2700) conformed to one of the nine perfect cumulative

(Table 3 About Here)

patterns (Table 3). The nonconforming patterns were randomly distributed and are not presented or discussed in this paper. The percentages of conforming patterns differed slightly across types of organizations: voluntary = 77.7%, public = 69.8%, professional = 76.9%, interorganizational = 75.0%. The data in Table 3 also indicate how extensively different types of organizations are involved in inter-organizational relations. If just scale patterns a, b and c are examined, inter-organizational organizations, as expected, are more involved in IOR than are the other three types of organizations. This is seen by adding the percentages of each type of organization exhibiting scale patterns a, b and c: voluntary = 1.8%, public = 2.0%, professional = 2.0%, and interorganizational = 18.8%. Between 35 and 39 percent of the voluntary, public, and professional organizations had no IOR (scale pattern i), whereas 19 percent of the interorganizational organizations had no IOR.

Theoretical Ordering

The coefficient of reproducibility was used in the evaluation of the cumulative scales. This statistic reflects the extent to which a respondent's scale score predicts his response pattern.

The coefficient of reproducibility for the theoretical ordering is .9311 for voluntary organizations, .9057 for public organizations, .9308 for professional organizations, and .9219 for interorganizational organizations. For each type of organization, the generally accepted minimum of .9 is met. Thus, the statistical analysis indicates support for the original theoretical ordering of the IOR items.

Empirical Ordering

We also wanted to complete the traditional Guttman procedure to determine possible alternative IOR orderings. Thus, empirical orderings, using frequencies of positive responses, were developed for each type of organization. A completely empirical determination provides higher magnitudes for statistical evaluation criteria. As expected, the coefficient of reproducibility for the empirical orderings is somewhat higher than the coefficient using the theoretical ordering. The coefficient of reproducibility for the empirical ordering is .9358 for voluntary organizations, .9125 for public organizations, .9363 for professional organizations, and .9392 for interorganizational organizations.

When we compare the theoretical and the empirical orderings for the four types of organizations, the data indicate agreement in the ordering among the theoretical and the four empirical orderings. This relationship was measured by Kendall's coefficient of concordance ($W = .93$) and tested by chi-square analysis ($x^2 = 26.04$).

Theoretical and Empirical Orderings

For each organizational type, the empirical ordering and the theoretical ordering was compared. The Spearman's rank-order correlation coefficient is .90 between the theoretical ordering and the voluntary-empirical ordering, .69 between the theoretical ordering and the public-empirical ordering, .90 between the theoretical ordering and the professional-empirical ordering, and .98 between the theoretical ordering and the interorganizational-empirical ordering.

Comparing the empirical orderings of the four types of organizations we find the following results. The Spearman's rank-order correlation coefficient is .88 between the voluntary and public empirical orders, .88 between the voluntary and interorganizational empirical orders, .88 between the public and professional empirical orders, .76 between the public and interorganizational empirical orders, and .88 between the professional and interorganizational empirical orders. The empirical ordering between voluntary and professional organizations is identical. All coefficients (theoretical-empirical or empirical-empirical) indicate statistically significant positive relationships in the orderings of IOR items. In some cases, a very high association (.98) exists, whereas in other cases, the association is lower (.69). The range in strength of association indicates that differences in orderings should be examined in more detail.

None of the empirical orders is identical to the theoretical order. The first two scale items, director awareness and director acquaintance and the last scale item, written agreements, are ordered identically for the theoretical ordering and

(Table 4 About Here)

all four empirical orderings. Overlapping boards was consistently ordered seventh in all four empirical orderings.

Director interaction was posited as the third scale item in the theoretical ordering. Empirically, it was found to be the third scale item for only inter-organizational organizations. Director interaction was ordered fourth for voluntary and professional organizations and sixth in public organizations. Given the different nature of the four types of organizations, the difference in how intense the IOR involvement is when directors interact may strongly influence the development of interorganizational programs. Some social planners have used the approach of bringing together directors from several agencies to initiate their interaction directed towards IOR activities. The data suggest that director interaction is a much higher form of intensity in public organizations.

Information exchange was ordered fourth theoretically. Empirically, it was also fourth for public organizations. It is empirically third in voluntary and professional organizations. Information exchange is a less intense form of IOR for voluntary and professional organizations than assumed in the theoretical ordering. In voluntary and professional organizations, it appears planners attempting to develop interorganizational relations should encourage exchange of information early in their effort and before involving directors in interaction. Information exchange is ordered fifth in interorganizational organization and thus in this type of organization is a more intense form of IOR than we postulated. Greater resistance to exchanging information may be met in interorganizational organizations than in any other type of organization.

Resource exchange was ordered fifth theoretically. Empirically, it was fifth in public organizations. It was empirically ordered sixth, however, in voluntary and professional organizations and fourth in interorganizational organizations. For interorganizational organizations exchanging resources is a less intense form of IOR than exchanging information. For voluntary and professional organizations exchanging resources is a more intense form of IOR than joint programs, which was theoretically ordered seventh.

Overlapping boards was the sixth item in the theoretical ordering. This form of IOR, however, is empirically ordered seventh for all types of organizations. Overlapping boards thus appear to involve a higher level of commitment to an involvement in IOR than we had expected. The rationale for the empirical order of overlapping boards might involve the desire of each organization to maintain autonomy.

Joint programs, ordered seventh theoretically, seemingly involve less intense IOR involvement than was anticipated theoretically. This is indicated by joint programs being empirically ordered fifth in voluntary and professional organizations, third in public organizations, and sixth in interorganizational organizations. We had assumed joint programs to be indicators of major IOR efforts. Some joint programs, however, apparently involve very little organizational commitment. Thus in future work, we may need to differentiate between two levels of joint programs.

Across the four empirical models, four items retain the same order: 1) director awareness, first; 2) director acquaintance, second; 3) overlapping boards, seventh; and 4) written agreements, eight. To construct theories from the empirical world, the consistency of the order of these items suggests that these orders for the four items might be pursued. The other four items, director interaction, information exchange, resource exchange, and joint programs, may be theoretically ordered differently among types of organizations because of true differences between organizational types in the intensity of IOR indicated by each form.

A theory of the measurement of IOR thus should consider that type of organization exerts a moderating effect. It is suggested that additional empirical analysis of alternative types of organizations be pursued to help develop IOR measurement theory.

Toward a Better General IOR Measure

Granting the conclusion that type of organization is a moderator variable, the analysis of the empirical orderings suggests the consideration of a revised general theoretical ordering of the eight items as well. Items 1 and 2, director awareness and director acquaintance retain the same order in a revised theoretical order. Information exchange is consistently before director interaction in the empirical orderings. Thus, information exchange is ordered third in the revised theoretical order. Director interaction is fourth for two of the empirical orderings and is fourth in the new theoretical ordering. Joint programs are placed fifth in the revised theoretical ordering because joint programs are fifth in the empirical orderings for voluntary and professional organizations. Resource exchange is prior to overlapping boards and written agreements on all four empirical orderings and thus is ordered sixth in the new theoretical ordering. The empirical orderings indicate support for ordering overlapping boards seventh. Written agreements remain eighth in the new ordering.

This revised theoretical ordering was tested empirically. The coefficient of reproducibility for the new order is .9358 for voluntary organizations, .9189 for public organizations, .9363 for professional organizations, and .9184 for inter-organizational relations. These coefficients are the same as for the empirical orderings for voluntary and professional orderings because the general and empirical orders are the same. The coefficient of reproducibility on the revised theoretical order for public organizations (.9112) is slightly higher than the coefficient on the theoretical ordering (.9057) and slightly lower than the coefficient for the empirical ordering (.9125) for this type of organization. The coefficient on the revised theoretical order for interorganizational organizations is less than for the empirical ordering (.9392) and the original theoretical ordering (.9219). Thus, while all orders are statistically significant, i.e., meet the .9 criteria, the coefficient of reproducibility does indicate that the revised theoretical ordering may be a useful general ordering.

IMPLICATIONS FOR INTERORGANIZATIONAL RELATIONS

The IOR multi-item measure allows examination of alternative forms of organizational interaction. Theory construction and testing can be enhanced through measures of intensity of relationships between organizations.

Our major purpose was to assess the generalizability of the measurement of IOR across types of organizations. Some item measures of IOR, such as director awareness, director acquaintance, overlapping boards and written agreements, are consistently ordered empirically across types of organizations. Other measures, such as director interaction, information exchange, resource exchange, and joint programs, differed empirically in order between types of organizations. The revised theoretical ordering should be considered in the development of a general theory of measurement of interorganizational relations.

Researchers and social planners should be cognizant of the limited generalizability of interorganizational relations measures between types of organizations. The data do indicate that voluntary and professional organizations may be treated similarly in evaluating how intensely a form of interaction is seen by each type of organization as involving interorganizational relations. It appears that a social planner should seek to first engage an organization of any of the four types in less intense forms of IOR and then proceed to engage the organization in more intense interorganizational involvement. The success of interorganizational efforts may be strongly influenced by the social planner's awareness of the degree of IOR involvement for different types of organizations as indicated by the forms in which IOR is operative.

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Table 1. Frequencies of Respondents by Organizational Type at Alternative Organizational Levels.

Organizational Type	Organizational Level			
	State	District	County	Total
VOLUNTARY				
Blue Cross	1	0	0	1
Blue Shield	1	0	0	1
Cancer Society*	1	4	6	11
Cerebral Palsy Assoc.*	1	1	0	2
Congress of Parents and Teachers	1	0	0	1
Easter Seal Society*	1	0	8	9
Heart Association*	1	2	8	11
Mental Health Assoc.	1	0	0	1
Retarded Children Association	1	0	0	1
T.B. Association*	1	2	8	11
PUBLIC				
Aging & Chronic Illness	1	0	0	1
Community Health Service*	1	4	9	14
Comprehensive Health Planning	1	0	0	1
Division of Rehabilitation, Education, and Services*	1	4	0	5
Health Department	1	0	0	1
Public Instruction	1	0	0	1
Social Services*	1	2	8	11
University Extension*	1	2	7	10
PROFESSIONAL				
Dental Association*	1	3	0	4
Education Association	1	0	0	1
Farm Bureau*	2	6	7	15
Hospital Association*	1	0	8	9
Medical Society*	1	3	7	11
National Farmer's Organization*	1	0	0	1
Nurses Association*	1	3	0	4
Nursing Home Assoc.	1	0	0	1

* Contact organization. Respondents were asked each item only about the contact organizations.

Table 1 cont.

Organizational Type	Organizational Level			
	State	District	County	Total
PROFESSIONAL cont.				
Osteopathic Society*	1	3	0	4
Pharmaceutical Assoc.*	1	3	0	4
School Board Assoc.	1	0	0	1
INTERORGANIZATIONAL				
Assoc. Health Organization	1	0	0	1
Assoc. for Health, Physical Education, and Recreation	1	0	0	1
Health Council	1	0	0	1
Health Planning Council*	1	2	0	3
Interagency Council on Smoking and Health	1	0	0	1
Regional Medical Program	1	0	0	1
TOTAL	36	44	76	156

* Contact organization. Respondents were asked each item only about the contact organizations.

Table 2. Frequency of "Yes" Responses

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Scale Items	Frequency of "Yes" Responses: Voluntary N	Voluntary % of 864	Public N	Public % of 774	Professional N	Professional % of 918	Inter-organizational N	Inter-organizational % of 144
1. Director Awareness	560	64.8	486	62.8	556	60.6	117	81.3
2. Director Acquaintance	218	25.2	248	32.0	218	23.7	77	53.5
3. Director Interaction	112	13.0	144	18.6	146	15.9	56	38.9
4. Information Exchange	127	14.7	159	20.5	164	17.9	49	34.0
5. Resource Exchange	95	11.0	156	20.2	102	11.1	55	38.2
6. Overlapping Boards	89	10.3	57	7.4	73	8.0	46	31.9
7. Joint Programs	111	12.8	163	21.1	120	13.1	48	33.3
8. Written Agreements	10	1.2	24	3.1	13	1.4	2	1.4

Table 3. Frequencies of "Perfect Scale Patterns"

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Scale Type (Pattern)	Scale Items								Voluntary		Pub
	1 Director Awareness	2 Director Acquaintance	3 Director Interaction	4 Information Exchange	5 Resource Exchange	6 Overlapping Boards	7 Joint Programs	8 Written Agreements	N	% of 864	N
a	Y*	Y	Y	Y	Y	Y	Y	Y	2	.2	5
b	Y	Y	Y	Y	Y	Y	Y	N	9	1.0	7
c	Y	Y	Y	Y	Y	Y	N	N	5	.6	4
d	Y	Y	Y	Y	Y	N	N	N	3	.3	8
e	Y	Y	Y	Y	N	N	N	N	18	2.1	9
f	Y	Y	Y	N	N	N	N	N	14	1.6	15
g	Y	Y	N	N	N	N	N	N	65	7.5	53
h	Y	N	N	N	N	N	N	N	251	29.1	151
i	N	N	N	N	N	N	N	N	304	35.2	288
				Total Conforming Administrations					671	77.7	540

* Y = "Yes", organization does have this type of relation with the "contact" organization.
N = "No", organization does not have this type of relation with the "contact" organization.

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Frequency of Scale Type

8 Written Agreements	Voluntary N	Voluntary % of 864	Public N	Public % of 774	Professional N	Professional % of 918	Inter-organizational N	Inter-organizational % of 144	Total N	Total % of 2700
Y	2	.2	5	.6	0	0.0	2	1.4	9	.3
N	9	1.0	7	.9	12	1.3	21	14.6	49	1.8
N	5	.6	4	.5	6	.7	4	2.8	19	.7
N	3	.3	8	1.0	5	.5	3	2.1	19	.7
N	18	2.1	9	1.2	24	2.6	0	0.0	51	1.9
N	14	1.6	15	1.9	22	2.4	6	4.2	57	2.1
N	65	7.5	53	6.8	23	2.5	13	9.0	154	5.7
N	251	29.1	151	19.5	252	27.5	32	22.2	686	25.4
N	304	35.2	288	37.2	362	39.4	27	18.8	981	36.3
ns	671	77.7	540	69.8	706	76.9	108	75.0	2025	75.0

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Table 4. Theoretical and Empirical Item Orderings

Theoretical Ordering	Empirical Orderings			
	Voluntary	Public	Professional	Interorganizational
1. Director Awareness	Director Awareness	Director Awareness	Director Awareness	Director Awareness
2. Director Acquaintance	Director Acquaintance	Director Acquaintance	Director Acquaintance	Director Acquaintance
3. Director Interaction	Information Exchange	Joint Programs	Information Exchange	Director Interaction
4. Information Exchange	Director Interaction	Information Exchange	Director Interaction	Resource Exchange
5. Resource Exchange	Joint Programs	Resource Exchange	Joint Programs	Information Exchange
6. Overlapping Boards	Resource Exchange	Director Interaction	Resource Exchange	Joint Programs
7. Joint Programs	Overlapping Boards	Overlapping Boards	Overlapping Boards	Overlapping Boards
8. Written Agreements	Written Agreements	Written Agreements	Written Agreements	Written Agreements